Bulletin

OF THE NATIONAL TUBERCULOSIS ASSOCIATION

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NTA Medical Research Program Vastly Expanded Since 1921

Steps in the Development of BCG Vaccine

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Increases Medical Research Grants

Across the EDITOR'S DESK

1950 Research Program

The National Tuberculosis Association will aid in the support of 26 research projects during the fiscal year 1950-1951. It is interesting to note that this is three times the number sponsored in 1940-1941, the last year before the war. The growth reflects an increased emphasis on medical research that developed during the war, and shows a realization of its possibilities in a period of rapid development of new methods in the treatment of all infectious diseases.

The program is a broad one, including fundamental studies on the chemistry, bacteriology, pathology, and immunology of tuberculosis and clinical research. It is supplemented by the recent establishment of a program of teaching and research fellowships. Eight fellowships have been authorized for 1950-51. The 34 research grants and fellowships will be in effect in 16 states distributed as follows: East Coast, 20; South, 5; Middle West, 3; West and West Coast, 6.

It is of interest to refer briefly to certain of the more recently sponsored investigations. A group of projects deals with heredity and genetics. Rather strangely, in the long history of research on tuberculosis, there has been little study of the genetics of the tubercle bacillus, in spite of the well known fact of derivation of attenuated strains from virulent strains (BCG is a good example), and very little, also, on the genetics of animals in relation to resistance to tuberculosis.

Studies at Yale University and the Long Island Biological Laboratory, Cold Spring Harbor, N.Y., on mutation and other aspects of the genetics of acid-fast bacteria are proving of great promise, and research under way at the Henry Phipps Institute, Philadelphia, and the Jackson Memorial Laboratory, Bar Harbor, Me., have shown that it is possible to breed animals specifically for resistance or susceptibility to tuberculosis and thus throw light on the age-old problem of the importance of innate constitution in tuberculosis.

No broad program fails to take stock from time to time of past as well as present developments, and it is not surprising to note among the new projects an unusually careful study of the value of bed rest alone, i.e., the time-honored treatment of tuberculosis, which is to be carried out at the Channing Home in Boston. In marked contract, from the point of view of therapy, is an investigation sponsored at Baylor University, Dallas, Texas, on mycomycin, the newest of the antibiotics shown to have a strikingly suppressing effect on the tubercle bacillus.

Other interesting contrasts are seen in several studies on the effect of certain chemical substances which might suppress or enhance the development of tuberculous tissue in the infected animal. An example is a study at the University of Virginia in which the effects of hyaluronidase, a chemical which tends to heighten tissue permeability, are being investigated. This substance might increase the spread of tubercle bacilli in the body, rendering the disease worse, or it might be a useful adjunct in streptomycin therapy, facilitating the passage of the drug through the mechanical fibrotic barriers established by the body in its attempt to wall off infecting tubercle bacilli. Only through experiment can the true facts become known.

These few new projects are cited simply to illustrate the range of studies in course. They represent fascinating bits of exploration of themselves, of absorbing interest to the investigators engaged in the projects. Together with the others in effect they may be expected with confidence to add highly useful information to the sum total of our understanding of tuberculosis and its treatment.—*Esmond R. Long, Director, Medical Research and Therapy, NTA*

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OF THE

NATIONAL TUBERCULOSIS ASSOCIATION

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Grants Increased To Aid TB Research

NTA Approves Assistance to 26 Scientific Investigators—Five New Studies Included—Other Grants Allow Continuation of Studies Begun Earlier

By AGNES FAHY*

GRANTS to aid 26 scientific investigators in the conduct of research on tuberculosis have been approved by the National Tuberculosis Association for the fiscal year beginning April 1, according to an announcement by Dr. Esmond R. Long, director of medical research and therapy.

The grants represent the largest number to be made by the NTA since it inaugurated its research program in 1921 and established the policy of using its limited funds to aid qualified investigators with adequate facilities at their disposal for the conduct of research. Thus, Dr. Long explained, funds of the Association have reached further than would have been possible if the Association had had to set up and finance completely independent research projects.

Vastly Expanded Program

Furthermore, according to Dr. Long, the NTA has always believed in encouraging men with ideas by helping them carry on work with a particular appeal to them. This policy has been continued to the present, but the research program has been vastly expanded as increased funds have been available from the Christmas Seal Sale and from special contributions from affiliated associations.

In addition to the research grants, the NTA has authorized eight fellowships for the 1950-51 fiscal year.

Among the new grants is one which will further the investigation of an antibiotic which has been found in the test tube to have bacteriostatic action against the tuberculosis germ, the tubercle bacillus.

The antibiotic is mycomycin, discovered recently by Dr. Edwin Johnson of Baylor University, Houston, Texas. The NTA grant is to Dr. Daniel E. Jenkins of Baylor University College of Medicine, one of a group of Baylor investigators who are carrying out a well planned study of the antibiotic as an anti-tuberculosis agent.

New Type Grant

Another new grant represents a departure from the type usually made by the NTA in that it will provide funds to expedite publication of a book on research already completed. The grant is to Dr. Averill A. Liebow, associate professor of pathology, Yale University School of Medicine, who is preparing to publish a book on the "Anatomy and Pathology of Pulmonary Segments."

Other new grants are to Dr. S. W. Britton, professor of physiology, University of Virginia, who is making a study to determine the effect on tuberculosis of hyaluronidase, an enzyme with special tissue-permeating qualities; to Dr. Richard J. Winzler, associate professor of biochemistry, University of Southern California School of Medicine, who is making a study of certain proteins of human plasma which appear to rise markedly in malignant diseases and in tuberculosis, and to Dr. John E. Forney of Barlow Sanatorium, Los Angeles, who is investigating the role of the wax of the tubercle bacillus in establishing delayed hypersensitivity to non-acid-fast bacteria, a study commenced in connection with another grantee, Dr. Sidney Raffel of Stanford University.

An illustration of the continuity of the research program is found in renewal of the grant to Dr. R. J. Anderson of the Sterling Chemistry Laboratory, Yale University. Dr. Anderson has been aided by the NTA since 1931 in his study of the chemistry of the tubercle bacillus and other acid-fast bacilli, with particular attention to their fats and waxes. More than 300 different substances have already been prepared by Dr. Anderson and his students from these bacilli. One which has been produced synthetically has been found to have the composition of vitamin K.

Another grant for a continuing study is to Dr. Florence B. Seibert of the Henry Phipps Institute, Philadelphia, who in 1926 identified a protein as the active principle of tuberculin, the substance used in tuberculosis skin sensitivity tests, and prepared a standard tuberculin known as Purified Protein Derivative, or PPD. Dr. Seibert, whose research has received support from the NTA since 1939, is now attempting to isolate in purer form three different proteins so far identified and to study the differences in their chemical composition, with particular attention to any correlation with infection, virulence of strain, and immunity. Dr. Seibert is also correlating data on the relationship in rabbits between the rise in polysaccharide content of sera and the progress of tuberculosis.

Inherited Factors

Through two groups of studies, an effort is being made to learn more about the inherited factors which make the tubercle bacillus virulent for man and, conversely, factors inherited by man which make him resistant to the destructive action of the germ.

In the first of these groups are investigations by Dr. Vernon Bryson, research biologist, Biological Laboratory, Cold Spring Harbor, N.Y., and by Dr. Mary I. Bunting, research fellow in microbiology, Osborn Botanical Laboratory, Yale University. Dr. Bryson is making a study in particular of the rate of development of resistance on the part of the germs to such drugs as streptomycin. Dr. Bunting's study

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is on other inherited factors of mycobacteria.

In the second group, Dr. Max B. Lurie of the Henry Phipps Institute and Dr. Paul B. Sawin of the R. B. Jackson Memorial Laboratory, Bar Harbor, Me., are collaborating in the propagation and development of rabbit stocks of known genetic resistance to tuberculosis from which it is expected that light will be thrown on the influence of constitutional factors in resistance and susceptibility to the disease.

Grants are also being continued to Dr. Donald E. Bowman, associate professor of biochemistry, Indiana University School of Medicine, Indianapolis, and to Dr. Charles Weiss, director of laboratories, Jewish Hospital, Philadelphia, both of whom are investigating the role of enzymes in the destruction of tissue in tuberculosis.

Other Grants

Other grants being renewed are to:

Dr. Theodore L. Badger, clinical associate in medicine, Harvard Medical School, for his study of the evaluation of bed rest in tuberculosis treatment.

Dr. Amos Christie, professor of pediatrics, Vanderbilt University School of Medicine, Nashville, Tenn., for his study of histoplasmosis, a fungus disease which sets up a process in the lungs that may calcify, leaving scars similar to those of tuberculosis.

Dr. Mary Alice Hamilton, associate director, Colorado Foundation for Research in Tuberculosis, Colorado Springs, and Dr. Florian A. Cajori, University of Colorado School of Medicine, Denver, who are seeking to determine the combined effects of antibiotics against the tubercle bacillus and are also testing the ability of certain chemicals to modify the formation of tubercles, the defensive wall the body builds around the germs.

Dr. Henry F. Lee, Children's Hospital, Philadelphia, who is testing, for their ability to inhibit the growth of tubercle bacilli, filtrates from liquid culture media in which disease-producing fungi have been grown.

Dr. Edith M. Lincoln, chief, children's chest clinic, Bellevue Hospital, New York City, for her study of the course, possible outlook, and treatment of tuberculosis in children.

Dr. Carroll E. Palmer, chief, Field Studies Branch, Division of Tuberculosis, Public Health Service, Washington, D.C., for his study of minimal tuberculosis in nurses.

Dr. Sidney Raffel, professor of bacteriology, Stanford University, Stanford, Calif., who is continuing his work on immunity and hypersensitivity in tuberculosis.

Dr. Sidney Rothbard, chief, division of pulmonary diseases, Montefiore Hospital, Bronx, N.Y., who is investigating the possible application of a new blood test in the diagnosis of tuberculosis. In the test, devised by Drs. Gardner Middlebrook and Rene J. Dubos of the Rockefeller Institute for Medical Research, serum is separated from a small quantity of a patient's blood and mixed with sheep red blood cells which have been sensitized to certain components of the tubercle bacillus. Dr. Rothbard recently reported that, if the patient has tuberculosis, the sheep cells seem to agglutinate (clump) with the serum. He is also studying the possible application of the test as an index of activity of disease.

Dr. C. Richard Smith of Barlow Sanatorium, Los Angeles, who is evaluating methods for culturing tubercle bacilli for diagnostic purposes.

Dr. David T. Smith, professor of bacteriology, Duke University School of Medicine, Durham, N.C., who is studying the metabolism of the tubercle bacillus and how it is affected by the substitution of certain chemical agents for vitamins essential to the growth of the germs.

William Steenken, head of Trudeau Laboratory, Trudeau Sanatorium, Trudeau, N.Y., for the maintenance of a culture bank of tubercle bacilli. Through this bank, the NTA is able to supply scientific investigators throughout the world with standard strains of bacilli.

Dr. J. W. Williams, professor of chemistry, University of Wisconsin, Madison, who is continuing his chemical analysis of proteins and other components of the tubercle bacillus as the basis for further studies of the tuberculin reaction from which he hopes to develop a tuberculin of greater diagnostic precision than those in present use.

Dr. George W. Wright, head of the department of physiology, Edward L. Trudeau Foundation, Saranac Lake, N.Y., to continue his studies of forces responsible for the movement of air into and out of the lungs in persons with tuberculosis and in well individuals.

Fellowships are being awarded to Cornelius Chiamori, University of Southern California, Los Angeles; Miss Angelina Fabrizio, Henry Phipps Institute; Miss Anne Peterson, Duke University; Dr. Marjorie M. Pyle, Mineral Springs Sanatorium, Cannon Falls, Minn., and Dr. Milton Gusack of New York City.

Four other fellowships have been approved for which names have not yet been announced.

NTA AFFILIATES BACK RESEARCH

A total of 190 state or local associations in the following 22 states have made special contributions to the medical research program of the National Tuberculosis Association:

Connecticut, Florida, Indiana, Iowa, Kansas, Maryland, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, Ohio, Pennsylvania, South Dakota, Tennessee, Utah, Washington, Wisconsin, and Wyoming.

Genesis of the Bacillus Used in BCG

Development of Vaccine Used Today as Protective Measure Against Tuberculosis Result of Long Research To Find Bacillus Harmless to Man

By KONRAD BIRKHAUG, M.D.

THE subject of vaccination against tuberculosis received its first important impetus when the discoverer of the tubercle bacillus, Robert Koch, observed that guinea pigs already infected with tubercle bacilli were resistant to a second inoculation a few weeks later. Although the primary infection ran its fatal course, the secondary inoculation produced rapidly a local reaction—classically called the "Koch Phenomenon"—which promptly healed.

This demonstration of an organism's acquired capacity to resist tubercle bacilli spurred investigators to find a harmless vaccine for producing a benign primary infection which in turn would evoke a specific resistance against a virulent superinfection. Marfan's clinical observation (1886) that a healed lupus or scrofula produced resistance against pulmonary tuberculosis gave support to this argument.

Vaccines Legion

The array of experimental tuberculosis vaccines is legion. Although up to the present moment intensive research has failed to yield a foolproof vaccine which evokes complete protection against tuberculosis, some preparations deserve a brief mention inasmuch as they prepared the way for Calmette and Guérin's discovery of *Bacille Calmette-Guérin* (BCG) which gives more promise of usefulness for the prevention of tuberculosis than other preparations. It is a well known fact in all sciences that a seemingly useless and trivial observation of one worker often leads to a useful application by another. The birth of BCG was the result of such a fortuitous observation.

Cavagnis (1886) published the very first article on the subject of vaccine against tuberculosis. He inoculated rabbits and guinea pigs with sputum from tuberculous patients after the infectious material had been treated with 5 per cent carbolic acid. He observed some indication of acquired resistance against a challenge virulent superinfection.

Early Work

Our great anti-tuberculosis pioneer, Edward Livingston Trudeau (1893) repeated the experiment with cultures of tubercle bacilli reduced in virulence by long periods of drying. He too noticed a moderate degree of acquired resistance, but lost interest in the procedure first because the resistance fell far short of a complete immunity and, second, because he feared that the living tubercle bacilli might regain their virulence by passage in man. This ominous prospect induced Friedmann (1903) and Moeller (1904) to attack the problem with live tubercle bacilli from cold-blooded animals, such as the slow-worm, turtle, and carp, since their virulence for man was negligible. Recently, Aronson (1926) tried similar cultures from fish and garter snakes. All these trials proved disappointing since such bacilli were too weak to evoke sufficient resistance against a virulent challenge inoculation.

The application of dead tubercle bacilli killed by heat, chemicals, irradiation, or other means, which naturally insures the greatest margin of safety for use in man, have by and large yielded inconclusive results, although research along that line continues.

More encouraging results were obtained in cattle. Working under the hypothesis that human tubercle bacilli were inoffensive for cattle, Von Behring (1902) inoculated them with a human strain of low virulence. The degree of acquired resistance against bovine tuberculosis was so impressive that this vaccine was patented under the trade-name "Bovovaccine." Fortunately, its more extensive use was promptly curtailed when the British tuberculosis expert, A. Stanley Griffith (1913) made known that such vaccinated cattle excreted virulent human tubercle bacilli in the milk and that their suckling calves became tuberculous and a danger to their surroundings on reaching maturity.

McFadyean's (1913) similar attempt with living avian tubercle bacilli met with the same objection and the feces of such vaccinated cattle proved a constant source of danger to domestic fowls.

Calmette Enters Picture

Meanwhile, the French colonial physician, Albert Calmette, returned from Indo-China to the Pasteur Institute in Paris in 1893 to purify his newly discovered antivenin serum. During this sojourn,

THE AUTHOR

Dr. Birkhaug is principal medical bacteriologist, Division of Laboratories and Research, New York State Department of Health, where he is in charge of the BCG laboratory. A graduate of Johns Hopkins University Medical School, he has served as associate professor of bacteriology, University of Rochester, N.Y., and on the staffs of Pasteur Institute, Paris, and the Christian Michelsen Institute of Medical Research, Bergen, Norway. Dr. Birkhaug has devoted most of his time during the past 25 years to experimental medicine and the perfection of BCG vaccination. His article is a contribution from the Committee on Medical Information and Public Relations of the American Trudeau Society.

Pasteur prevailed on him to accept the directorship of the new Pasteur Institute which the City Council of Lille had offered to build in Northern France for the production of diphtheria antitoxin and other biologic preparations.

Being constantly confronted with an appalling tuberculosis morbidity and mortality rate in Lille, Calmette devoted almost his entire time to social and scientific anti-tuberculosis work. Thus he built the first Dispensaire Antituberculeux in France for the popularization of modern hygiene and treatment for the disease, and soon thereafter the first Préventorium Emile Roux for the isolation of tuberculosis-threatened infants, and the very first tuberculosis sanatorium in France at Montigny-en-Ostrevent near Douai with 108 beds for the treatment of pulmonary tuberculosis. Then followed the organization of a first-class tuberculosis research institute to which he called promising investigators both in human and veterinary medicine, and where he directed assiduously investigations in modes of infection, methods of diagnosis, and prevention of tuberculosis.

It is of more than passing interest that our own tuberculosis expert, Dr. Lawrence F. Flick, acknowledged his indebtedness to Calmette for the many original procedures in experimental and clinical tuberculosis work he had observed at Lille in 1904, many of which he incorporated into the new Henry Phipps Institute he built in Philadelphia the following year.

Dead Bacilli Useless

In dealing with the preventive aspects of cattle tuberculosis, Calmette was thoroughly convinced about the uselessness of dead tubercle bacilli or bacterial products as adequate vaccines. His vast experience with cattle tuberculosis had made it abundantly clear that an animal having ingested a single meal infected with a small number of virulent bovine bacilli invariably contracted a glandular or pulmonary form of tuberculosis or both simultaneously, which after a few months might heal completely and again render the animal tuberculin negative. Such healed cattle remained insusceptible for shorter or longer periods to a virulent challenge infection which killed unvaccinated control animals in four to six weeks. In other words, the cattle were immunized.

Sought Suitable Culture

Calmette attributed this acquired anti-tuberculosis resistance to the actual presence in the body of a few living tubercle bacilli. He set out, therefore, to find a suitable culture of bovine tubercle bacilli with lowered virulence which might serve the purpose of producing a benign and non-progressive primary tuberculous infection, which in turn would evoke the classical "Koch Phenomenon" when a virulent infection supervened.

In collaboration with his veterinary assistant, Camille Guérin, he turned to his friend Nocard in 1906 for such a mildly virulent bovine tubercle bacillus. They were given a strain which Nocard had isolated from a tuberculous horse in 1902. After some experimentation, they found it too virulent for rabbits and guinea pigs and discarded it. Again they turned to Nocard for a more satisfactory culture of attenuated bovine bacillus. This time they were given a culture isolated from the udder of a tuberculous cow.

When Calmette asked his experienced bacteriologist colleague Nocard about a proper medium on which to obtain a smooth growth of bovine bacilli, which might readily be suspended in saline solution for exact enumeration of microorganisms, he was told that a slab of potato boiled in glycerinated pure ox bile was an ideal medium on which to achieve that end. This suggestion proved to be the magic formula which turned this second Nocard strain into the harmless and yet efficacious bacterial antigen to serve Calmette and Guérin's purpose.

On Dec. 28, 1908, Calmette and Guérin presented their first communication on the fate of their bile medium cultured strain of bovine bacillus. Their auditorium was the illustrious French Académie de Sciences. They informed their listeners that after only 15 passages on this bile medium, effectuated every 25th day, and incubated at 38° centigrade, this strain of bovine bacillus failed to produce fatal tuberculosis in guinea pigs, and heifers tolerated 100 mg. inoculated intravenously. This remarkable fall in virulence within one year of cultivation on the bile potato medium augured well and Calmette and Guérin continued patiently their tri-weekly subcultures and inoculated laboratory animals repeatedly.

On Nov. 2, 1909, they read a second paper before the same assembly and reported that after 33 passages on the bile potato medium, this strain of bovine bacillus was now capable of producing sufficient immunity in calves to protect them against a virulent challenge inoculation which killed non-vaccinated control calves in four to five weeks. But this strain was still virulent for horses after its 42nd passage on bile potato medium. Calmette and Guérin were determined to continue its attenuation until it had become harmless also for horses.

Prove Value

Meanwhile, they proceeded to demonstrate its immunizing value in cattle and proved that a single intravenous inoculation of 20 mg. of this attenuated culture into normal calves produced a significant protection not only against a challenge intravenous inoculation of virulent bovine bacilli, but also against contact infection in stables housing tuberculous cows. This resistance was dissipated after 18 months, but could be maintained indefinitely by annual revaccinations. Thus they were able to report in 1914 that

... *Continued on page* 60

More Federal Aid Now Available To Spur TB Hospital Construction

TUBERCULOSIS hospital construction in the United States is lagging far behind that of general and specialized hospitals in spite of an acute need for such facilities, according to an article in the February, 1950, issue of *Public Health Reports*.

Entitled "Tuberculosis Facilities and Planning Under the Hospital Survey and Construction Act," the article was written by Louis S. Reed, Ph.D., chief, Medical Economics Branch, Division of Medical and Hospital Resources, Bureau of Medical Services, and Edward T. Blomquist, M.D., senior surgeon, assistant chief, Division of Tuberculosis, Public Health Service.

Under the Act, which provides federal assistance for surveys of existing hospitals and health centers and for the construction of public and non-profit hospitals, all 48 states, the District of Columbia, and the territories have surveyed their existing facilities and have prepared plans for hospital construction which have been approved by the Surgeon General.

Only 8 Per Cent for TB

Of the total existing hospital beds reported in the latest approved plans, only about 8 per cent, or 93,852, are for tuberculosis care, the article states. Of these, 12,393, or 13 per cent, have been declared non-acceptable by state agencies on the basis of such things as fire hazard, obsolete construction, and health hazard.

Pointing out that at this time only six states and one territory meet the recommended ratio of 2.5 acceptable beds per annual death, the authors say that a total of 146,926 tuberculosis beds is needed —67,477 beds in addition to the present supply.

To meet this need, the article states, only 27 of the 836 approved project applications for all types of hospitals have been filed for tuberculosis hospitals despite the fact that there is a slightly greater proportionate need for additional tuberculosis hospital construction at this time than for general and specialized beds.

Long Waiting Lists

The authors point out, that at the present time, tuberculosis control workers in many communities are confronted by the problem of long waiting lists for admission to tuberculosis hospitals.

"Despite the obvious public health hazards," they say, "patients are frequently and of necessity permitted to remain in contact with members of their families and their communities and necessary treatment is indefinitely postponed."

"Public health officers, public health nurses, and all other professional workers concerned with tuberculosis control in local areas repeatedly emphasize the hardships resulting from the extreme shortage of tuberculosis hospitalization facilities," the authors continue. "Today, case finding, although valuable because it identifies cases and puts them under medical supervision, does not achieve maximum benefits when those who need hospitalization cannot receive it."

No definite reason can be given for the relative lack of activity in tuberculosis hospital construction, the authors state, except that the emphasis placed on the need for general hospitals possibly may have led to a misapprehension on the part of tuberculosis control officials that the provisions of the Hospital Survey and Construction Act do not apply to tuberculosis. Such is not the case, they say, nor was it ever so intended. The Act applies with equal force to the construction of tuberculosis facilities where the need can be demonstrated.

The original provisions of the Act were vastly liberalized through amendments passed in October, 1949. The Act now provides for a four-year extension of the program, from 1951 to 1955; a doubling of federal allotments to states, from $75,000,000 to $150,000,000, and a sliding scale of federal assistance, depending on the per capita income of the state.

The amendments provide special aid where hospital construction, started without federal funds, cannot be completed without such help. Provided also are annual appropriations up to $1,200,000 for grants for research and demonstration projects relating to the development, utilization, and coordination of hospital services, facilities, and resources. The latter provision has as its principal objective the stimulation of coordinated hospital services on a regional basis and such grants may be made to public or non-profit organizations.

The Act, as now amended, the article points out, provides an excellent opportunity for material advances in tuberculosis control everywhere. Liberal financial assistance is now available to the states in meeting the most costly phase of tuberculosis control—that of hospital care for all requiring it. Public health workers are urged to make local needs known to state hospital planning boards and to the members of their communities from whom major support must ultimately derive.

Finally, the authors state, serious consideration should be given to integrating plans for tuberculosis bed construction with those of general hospitals. Past experience has shown this to be a highly desirable practice and several states have already incorporated it in their plans for future hospital construction. This trend is especially true of rural areas seeking a practical answer to the problem of inadequate tuberculosis hospital care facilities.

CHICAGO SAN OFFERS NURSING AFFILIATION

Approval of Chicago's Municipal Tuberculosis Sanitarium as a school of affiliation for student nurses from accredited schools of nursing has been given by the Illinois Department of Registration and Education and the Board of Nurse Examiners, according to the Tuberculosis Institute of Chicago and Cook County.

Four students are already enrolled under an agreement between the MTS and Sherman Hospital, Elgin, Ill. More than a dozen nursing schools have evidenced interest in the course and it is expected that facilities for the training of about 45 students can be provided by September.

The eight-week course covers theory, practice, and field observation in tuberculosis nursing. Students are instructed in aseptic communicable disease techniques and are offered two weeks of supervised experience in surgery. They also visit MTS clinics and accompany MTS field nurses to patients' homes to observe methods of case finding, and prevention.

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EXTEND BCG PROGRAM TO LATIN AMERICANS

The International Tuberculosis Campaign, already under way in Europe, the Middle East, North Africa, and Asia with United Nations assistance, will be extended this year to Latin America, Dr. Johannes Holm, director, announced in February.

The work is being sponsored by the United Nations International Children's Emergency Fund and Scandinavian relief societies with the technical assistance of the World Health Organization. Equipment will be supplied by UNICEF.

In Mexico, during the first year, 1,000,000 children will be tested and vaccinated with BCG when tuberculin negative. The government will test 1,000,000 more during the second year. Scandinavian doctors and nurses will assist during the first six months of the campaign. Vaccine will be supplied by the Mexican government laboratory in Mexico City.

Scandinavian teams also will assist in the testing and vaccination of 1,100,000 children and adolescents in Ecuador during a one-year program. The vaccine will come from Mexico City during the initial stages until the national laboratory at Guayaquil is ready to take over.

PUBLIC RELATIONS AT ANNUAL MEETING

Alexander Crosby, writer and designer of pamphlets, will analyze and discuss annual reports at a conference on public relations which has been set for Wednesday, April 26 at 8:00 P.M., during the annual meeting of the National Tuberculosis Association in Washington, D. C.

A former newspaperman, Mr. Crosby is author of the National Publicity Council booklet, "Pamphlets That Pull," and of articles in the council publication, *"Channels."*

Edmund P. Wells, executive secretary of the Maine Public Health Association and chairman of the National Conference of Tuberculosis Secretaries' Advisory Committee on Public Relations, will be chairman of the conference.

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CUBAN HEALTH UNITS

The Cuban government has received the first of 108 specially designed motor coaches that will give medical and dental services to 100,000 children in poor rural areas. The units will be sent into areas where hospital, medical, and dental facilities are lacking. Particular attention will be paid to tests for tuberculosis and blood and skin diseases.

URGE RADIOLOGISTS BACK MASS SURVEYS

"Radiologists should look sympathetically upon mass chest X-ray surveys since, when properly conducted, they are an important factor in the improvement of public health."

The above statement is from the report of the Committee on Diseases of the Chest of the Commission on Public Health, American College of Radiology, published in its 1949 *Bulletin.* The report further states that no harm accrues to the practice of radiology through such surveys but, if anything, the surveys result in an increased interest in and, therefore, utilization of radiology for diagnosis.

Radiologists should support the surveys, the report says, and lend whatever influence they possess toward educating the medical profession to give serious attention to survey reports and toward stimulating the proper authorities to provide adequate care for the cases thus discovered.

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MINN. TO HAVE NEW TB UNIT FOR MENTALLY ILL

A new isolation center for the mentally ill in Minnesota who have tuberculosis will be opened at Anka State Hospital in July, according to the Minnesota Public Health Association.

Consisting of a 253-bed section, the center will be equipped to care for all the tuberculous mental patients in the state. It will have four X-ray units, including one for dentistry, and will provide a canteen, barber shop, beauty parlor, and occupational therapy department.

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VETERANS HOSPITALS

Twenty-six Veterans Administration hospitals and six major additions to existing VA hospitals are scheduled for completion during 1950, the VA has announced. The new buildings will provide 11,710 new hospital beds.

Practical Nurse Training

Carefully Trained and Supervised Non-Professional Seen As Highly Useful Member of Nursing Team—Recognition Shown By Growth in Training Facilities

By ELIZABETH C. PHILLIPS, R.N.

THE past ten years have made many changes in the nursing care of patients no matter where they are or what their diagnosis. Much of this change is due to the tremendous advancements in medical science which have a direct bearing upon the nursing needs of patients. As a result, nursing has become more complex.

There are more mechanical appliances at the bedside than ever before and the nurse must be ready to work with them. More potent drugs are being ordered and the nurse must be able to administer them. More detailed observation of the patients' reactions and behavior are being required by physicians and the nurse must be able to note and record them.

Over and above all, more and more attention is being put upon the treatment of the patient "as a whole" and the nurse must understand not only his physical but his emotional and spiritual needs and be able to serve him not as an individual alone but as an important member of the family who will usually return to a useful life.

Increased Demand

Coupled with this growing complexity in nursing care has come an increased demand for more nursing; it is this demand that creates the shortage of nurses, for actually, the country has more nurses today than ever before.

The last ten years have seen also a change in the preparation of those who are concerned in the provision of patient services. In order to use professional nurse power to the fullest and where it is needed most, an increasing number of assistants are now employed.

These assistants are of three general types. First, there are maids of various sorts who do many things formerly expected of professional nurses; such things as care of linen, trays, and dishes; the cleaning of utility rooms and bedside tables, and the care of flowers. The second group that contributes to a more economical nursing service is comprised of nursing aides who are usually taught on the job to do such things as make beds, feed patients, help them to dress, bathe, and walk about. The third group of assistants is made up of practical nurses. This is the group which actually shares in the nursing of patients, and their training is, therefore, very, very important.

Learned by Doing

There are few adults today who have not known in their childhood, or even more recently, a "practical nurse" who came to the home and helped out when there was sickness. She was often given the entire responsibility for caring for the patient, yet she had never been taught how to do it. She was a valuable helper, yet she could be and often was no more skilled than is a housewife who also "learned by doing." The greatest trouble with this type of nurse was that she did not know how very limited her knowledge of nursing really was and, therefore, she was willing to attempt to do anything and everything for the patient. This worker was found not only in homes but also in institutions where she might or might not be receiving the much needed supervision which would assure safe patient care.

Throughout the years, and especially during the past decade, a belief has grown to a conviction in this country. It is the conviction that the practical nurse has something very valuable to give to society, but that in order to do it she must pass through a preparatory period which will be carefully planned and carefully supervised, and that after that she will still require supervision of her work from an understanding professional nurse.

Growth in Training

To give this training, schools have been set up. Although we have had them in this country since 1907, the number of their graduates has been very small and they have, until recently, been lost in the great mass of "practical nurses" who never had any preparation for the job of nursing. Growth in the number of schools has been very rapid in the past few years until there are close to 100 which have the approval of some accrediting body, and it is estimated that nearly 50 others are in various stages of development.

Schools of practical nursing are of three general types—those run by hospitals, those operated by voluntary community agencies, and those located within an educational system, usually in a vocational school. By far the greatest increase during the past five years has been in this latter type.

No matter under what auspices the school is operated, there is a common pattern of instruction. The duration of the course is from 9 to 18 months, 12 months being most usual. Demonstrations and supervised practice in the class room, together with discussion periods and other class work, both precede and run concurrently with the super-

THE AUTHOR

Miss Phillips is executive director of the Rochester, N.Y., Visiting Nurse Association; chairman, Joint Committee on Practical Nurses and Auxiliary Workers in Nursing Services, and chairman of the National League of Nursing Education's Committee on Practical Nurse Education.

vised experience in hospital wards. Nursing can never be mastered without adequate and appropriate supervised experience in caring for patients and these approved schools see to it that this is an integral part of the whole educational program.

Because the entire field of practical nursing will be open to the graduate, the school makes sure that a wide variety of basic experiences are provided. Practice in the care of special types of patients such as psychiatric, tuberculosis, and orthopedic is almost universally left until the graduate of the basic course is employed in a specialized service or institution. If time permitted, it would, of course, be well to include such learning opportunities in the basic course, but there is a limit to what can be accomplished in one year, and it has been found that if the basic skills are mastered it is not difficult to add to them in the specialties through a well planned orientation or on-the-job educational program.

Job Analysis Made

In order to determine what jobs are basic in practical nursing, a nationally representative committee was instructed by the U.S. Office of Education to make a job analysis of the practical nurse occupation. The result of this committee's work was published in 1947 as *Practical Nursing: An Analysis of the Practical Nurse Occupation With Suggestions for the Organization of Training Program.* A second committee, appointed the same year by the Office of Education, has constructed a suggested curriculum based upon the job analysis which should be available to schools this spring: *Practical Nursing Curriculum: Suggestions for Developing a Program of Instruction Based Upon the Analysis of the Practical Nurse Occupation.* It should be emphasized that this curriculum is designed to serve as a guide and must necessarily be adapted to the local needs of the school. However, it should serve to clarify content and suggest methods for teaching the course which in turn should have a beneficial effect upon the quality of graduates. One of the major emphases is, for instance, on the limitations of the practical nurse's job. The students must be taught this just as thoroughly as its scope. Another is that throughout the course the student shall be helped to understand how to work in a team relationship with professional nurses to the end that the patient will receive better care.

Recently a definition of a practical nurse was adopted by six national nursing organizations. It places emphasis upon this team relationship and indicates the scope of the nurse's activities:

"A practical nurse is a person trained to care for selected subacute, convalescent, and chronic patients and to assist the professional nurse in a team relationship, especially in the care of those more acutely ill. She provides nursing service in private homes where she is prepared to give household assistance when necessary and in institutions. She may be employed by the lay public, hospitals, or health agencies. A practical nurse works only under the direct orders of a licensed physician or the supervision of a registered professional nurse."

Professional Direction Needed

This definition indicates the types of patients for whom a graduate of such a curriculum will be prepared to serve—those whose nursing needs are of the simpler sort and which do not make demands upon her knowledge and skills which cannot be met. Herein lies the great need for professional nurse direction for it will be she, with the benefits of a longer and deeper preparation, who must analyze the patients' nursing needs as they are evidenced *currently* and must then decide whether or not they can be met—are met well—by the graduate practical nurse. To do this, the professional nurse will consider the physical and emotional state of the patient, the medical orders which have been left for him, and the individual abilities of her practical nurse assistant.

It would be folly to say that the practical nurse can care for *any* patient and an equal folly to say she can do this or that particular thing for *all.* Her work must be on a selective basis and even then it must be done under careful supervision. This is the safeguard needed in order that sound plans will be made for patient care that can be carried out with a high degree of success.

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FRONT COVER

Photograph by Underwood & Underwood

SEAL SALE SESSION AT ANNUAL MEETING

Leigh Mitchell Hodges, who took a leading part in the first Christmas Seal Sale in the United States in 1907, will be a featured speaker at the Christmas Seal Sale conference scheduled for 10:00 A.M., Friday, April 28, at the NTA annual meeting in Washington. His subject will be "The Romance of the Christmas Seal."

Other speakers scheduled for the session are Edward N. Mayer, Jr., president of James Gray, Inc., New York City, direct mail specialists, who will speak on "Sales Letters That Sell," and Nelson R. Kraemer, director, Christmas Seal Sale, NTA, who will report on the 1949 Christmas Seal Study Club. Mr. Mayer, who spoke at last year's annual meeting, will follow up on some of the points he made then. A good portion of his time will be given over to questions and discussion.

Mrs. Elizabeth Imhoff, director, Christmas Seal Sale, Tuberculosis Institute, Chicago and Cook County, will preside.

THE PRESIDENTS' COLUMN

By R. D. THOMPSON, M.D., President, NTA

AMONG the thousands of tuberculosis patients discharged with medical advice each year from all the sanatoriums in our United States, I believe far too many are returning to the sanatorium as readmissions, again to become bed patients and again to "take the cure."

Why do we have these readmissions? What mistakes have we made and where have we failed, that additional time, effort, and money must be expended on the same patients?

I have always endorsed the policy of having the patient remain in the sanatorium, if at all possible, until he becomes an apparently arrested case. If he is on graduated exercise —up to three hours a day of actual exercise, not only walking—for a period of three months and remains absolutely symptom free, he will return home with more confidence, with fewer phobias, and will follow the pattern of a protected and guarded life far better than other discharged patients.

Confidence, Determination

Each patient discharged as having apparently arrested tuberculosis must have confidence that he will continue to improve and have determination to improve. That confidence should be gained in the sanatorium as the patient is educated on how to protect his future. He should know, too, that his disease is under control and that his family is in no danger of becoming infected. Today, more patients seem cognizant of this fact than in the past.

The modern sanatorium is really a hospital. It has long ceased to be a glorified "rest home," and it is the great desire of all who are involved in the sanatorium treatment of tuberculosis to send the patient home neither a pulmonary nor a mental cripple.

Each patient should leave the sanatorium with a feeling of security and without fear of a breakdown. If patients are properly handled and educated, the number of readmissions surely can be decreased.

All former patients must learn to follow a definite way of life so that they may accommodate their daily living to their temporary, partial disability. Since tuberculosis is prone to relapse, everything possible should be done to guard against reactivation of disease.

Needs Detailed Plan

While in the sanatorium, the patient learns to know his disease. At the time of discharge he should receive a very definite plan or pattern to follow. Every detail—daily exercise periods, rest, recreation, mental outlook and, above all, frequent check-ups—must be clearly defined, advised, and explained. The day is past when the patient is simply told to "go home and take it easy."

We must learn from our social workers and other agencies, whether the home and the family are ready to receive the patient and whether the patient is ready for the home. We must know, too, what the situation will be in regard to adequate nutrition, clinical follow up, rehabilitation, proper guidance, and advice.

If an overall program of "how to keep your disease controlled" is carefully detailed for each patient, we can rightly expect a greater majority of patients to remain well.

There are certain conditions, such as acute respiratory infections, undue stress and strain, and accidents, which patients cannot avoid entirely. However, each patient can be carefully advised as to how to eliminate such circumstances as may impede his progress.

More cases are being found as a result of our nationwide mass X-ray surveys and we are going to be asked for beds for hundreds of new cases. If we can reduce the number of readmissions, more beds will be available to these patients found in surveys.

It involves more money and more work to treat a patient on his second or subsequent admissions than it does during his first stay in the sanatorium. Frequently we find more active disease at the time of readmission than at the time of the first hospitalization.

When a patient is readmitted we should determine, if possible, why readmission was necessary. We should ask ourselves what happened, what could have been avoided, and how we can help reduce the number of patients who break down and must be readmitted to the sanatorium.

I feel that we must concentrate more on helping the patient remain well, not only from a public health standpoint, but because breakdowns constitute a great economic, community, and family problem.

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NEW TRAINING COURSE

A school for medical record library training in the federal services has been established by the Division of Hospitals of the Public Health Service. The three-year course, approved by the Council on Medical Education and Hospitals of the American Medical Association, includes two years instruction at Baltimore (Md.) Junior College and one year at the U.S. Marine Hospital at Baltimore.

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NTA SETS INSTITUTE

The National Tuberculosis Association will hold a training institute for approximately 30 experienced tuberculosis workers at The Manor, Asheville, N.C., May 7-19.

ESTABLISH REHAB TEAM CONFERENCES IN CONN.

Rehabilitation "Team Conferences" have been developed in Connecticut sanatoriums as the result of a two-year study of a cooperative plan for rehabilitation activities in the state by the Rehabilitation Committee of the Connecticut Tuberculosis Association.

Included in the conferences are the rehabilitation counselor of the State Division of Vocational Rehabilitation, a sanatorium physician, social worker, occupational therapist, and a public health nurse. Sitting in also is a representative of the state association staff who serves as liaison between the sanatorium and the local tuberculosis association.

URUGUAY WILL HOLD TB CONGRESS IN DEC.

The Fourth National Tuberculosis Congress, sponsored by the Society of Tisiology of Uruguay, will be held in Montevideo, Dec. 11-12.

Directed by Prof. Fernando D. Gomez, the congress will have as its main topics, "The Treatment of Tuberculosis with Antibiotics" and "The National Experience in Mass Surveys."

An important session on tisiology will also be held at the Second National Medical Congress scheduled for Dec. 13-16 in Montevideo.

STATE HEALTH COUNCIL SET IN PENNSYLVANIA

Organization of the Pennsylvania Health Council, representing 40 state-wide health, welfare, and civic organizations, was announced by the Pennsylvania Tuberculosis and Health Society in February.

The object of the council is to assist in coordinating the planning and activities of agencies concerned with community health, to study the state's health needs, to help develop and promote constructive health programs, to propose constructive and needed legislation and to work for its enactment into law, and to work to prevent and eliminate overlapping and duplication of community health efforts.

One of the first big projects which the council will undertake will be promotion of public interest and understanding of the Pennsylvania Public Health Survey.

The first elected officers of the council are Dr. Gilson Colby Engel, Philadelphia, president; Dr. C. Howard Witmer, Lancaster, first vice president; Mrs. Philip S. Broughton, Pittsburgh, second vice president; William G. Mather, Ph. D., State College, secretary, and Edward M. Green, Harrisburg, treasurer.

REHAB CONFERENCE AT ANNUAL MEETING

"Human Relationships in Tuberculosis Control" will be the topic of a conference on rehabilitation scheduled for Wednesday, April 26, at 8:00 P.M., during the NTA annual meeting in Washington, D.C. Dr. Jerome Hartz, Baltimore, is the main speaker. Dr. G. Canby Robinson, Baltimore, is chairman.

Two seminars on rehabilitation are also scheduled. Both at 8:15 A.M., the first will be held Wednesday, April 26, the second Thursday, April 27.

Mrs. C. O. DeLaney, executive secretary, Forsyth Tuberculosis and Health Association, Winston-Salem, N.C., is moderator of the first session, on "Past Operation and Future Plans of the Rehabilitation Study Group."

The second session, on "Personnel Needs and Problems," will be under the direction of Walter Wenkert, executive secretary, New Haven (Conn.) Tuberculosis and Health Association.

PLAN X-RAY SURVEYS IN LOWELL, MASS.

Approximately 6,000 industrial workers in Lowell, Mass., will be offered chest X-rays in the near future by the Lowell Tuberculosis Association, according to the Massachusetts Tuberculosis and Health League.

The Lowell association will also cooperate with the local health department in offering chest X-rays to students in all Lowell high schools.

GENESIS OF BCG

. . . *Continued from page* 54

every one of 110 calves which had been annually inoculated intravenously each time with 20 mg. of the bile potato culture, had remained in excellent health the following five years although they had been fed on contaminated milk. At this time 30 of the vaccinated calves were slaughtered for examination and every one was found to be free from tuberculosis. And yet when their bronchial lymph glands were macerated and inoculated into normal guinea pigs, the latter died with generalized tuberculosis. This proved to Calmette and Guérin that vaccination of these calves was capable of holding virulent bacilli in check for as long as five years. Hence they concluded that the maintenance of tissue resistance against invasion and multiplication of virulent tubercle bacilli is dependent on the presence of living bacilli in the lympho-glandular tissue. Now they were more determined than ever to render their bile potato culture absolutely harmless for all species of mammals and to continue to test the validity of their hypothesis that a tubercle bacillus which maintains itself in harmless association with an animal organism will prevent the ravages of a superimposed virulent infection.

The first World War and the German occupation of Lille nearly dis-

NEW CAR CARD FOR CHEST X-RAY CAMPAIGN

Living is fun !
...if you're healthy
SEE YOUR DOCTOR, HEALTH DEPARTMENT OR TUBERCULOSIS ASSOCIATION
FIGHT TB · CHECK YOUR CHEST · GET AN X-RAY TODAY

Featured above is the latest in the series of car cards produced by the Advertising Council, Inc., for the "Fight Tuberculosis" campaign sponsored by the Council for the National Tuberculosis Association, its affiliates, the Public Health Service, and health departments throughout the country. Between 70 and 80 thousand of the cards are being posted in co-operation with the National Association of Transportation Advertising, Inc., and National Transitads, Inc.

rupted these promising investigations. But in 1920 Calmette and Guérin announced that after 235 passages, their particular strain of bovine tubercle bacillus was incapable of causing fatal tuberculosis in cattle, horses, dogs, monkeys, guinea pigs, or rabbits. When they had assured themselves than an intravenous dose of at least 44,000 of these bacilli was harmless for man, they indicated its safety for immunization of cattle even if the bacilli were excreted in the milk. To this culture they gave the name *Bacille Calmette-Guérin*. Cautiously Calmette intimated its possible usefulness in human vaccination when he stated: ". . . I dare say, that it doesn't seem altogether improbable to me that somebody might some day suggest that it be used as a vaccine for the prevention of tuberculosis in young children."

Warned of Limitations

Those of us who knew Calmette personally heard him repeatedly state that the use of BCG would fall short of a firm and lasting immunity. But he believed that it would stimulate enough protection to prevent a natural infection that might take place during the first year or two of life, when it is most dangerous, and that sufficient resistance would remain to enable later infections to be overcome, and to leave in their turn the higher grade of immunity associated with such recovery. Unfortunately, Calmette passed away Oct. 29, 1933, while the battle against BCG reached its peak and most phthisiologists and health officers expressed the belief that its use might prove not only useless but also hazardous. Doctor Guérin survives at the age of 77 to enjoy the universal acclaim of the vaccine. The vast literature on BCG vaccination is reviewed in an objective manner in Dr. K. Neville Irvine's book, *BCG Vaccination in Theory and Practice*, published in 1949 by Charles C. Thomas, Springfield, Ill.

The tide has slowly turned in favor of Calmette's belief in the relative protection afforded by BCG against tuberculosis. During the last decade alone more than fifty million persons have been inoculated with the vaccine throughout the world and its use has become obligatory by law in Norway, France, Brazil, and the U.S.S.R.

Despite the fact that no clear and unequivocal scientific proof is available of the precise effectiveness of BCG vaccination in the control of human tuberculosis, one cannot any longer deny that the weight of evidence from a small number of serious and impartial controlled studies here and abroad seems strongly to favor the procedure especially for persons exposed to special dangers of infection. It remains for the future, however, to determine more precisely the limits of BCG's usefulness in our successful present scheme for dealing with tuberculosis in this country.

Thirteenth Annual Press Project Brings Awards To 189 Schools

MERIT certificates have been awarded by the National Tuberculosis Association to 189 schools in 39 states, the District of Columbia, and Hawaii, for outstanding contributions to tuberculosis control made by student publications in the 13th Annual School Press Project. The project was conducted last fall by the NTA and its affiliates and was co-sponsored by the Columbia Scholastic Press Association.

A record number of entries, 395, was received from 318 schools, the largest number to participate since the project was begun in 1936. The themes for the 1949 project were: "Our Community Program for Tuberculosis Control," and "How We Can Help Prevent Tuberculosis." The winning schools follow:

ALABAMA

Ramsay High School, Birmingham.

ARKANSAS

Fort Smith Junior High School, Fort Smith; Magazine High School, Magazine.

CALIFORNIA

Hamilton Junior High School, Oakland; Santa Cruz High School, Santa Cruz; Canoga Park High School, Canoga Park; John Muir Junior High School, Burbank.

COLORADO

Boulder High School, Boulder; Fountain High School, Fountain.

CONNECTICUT

Southbury Public School, Southbury; Saxe Junior High School, New Canaan; Fair Haven Junior High School, Sheridan Junior High School, Augusta Lewis Troup Junior High School, New Haven; Notre Dame High School, West Haven; Enfield High School, Thompsonville.

DISTRICT OF COLUMBIA

Banneker Junior High School, Charles Young Platoon School, Harrison School, Thaddeus Stevens School, Washington.

FLORIDA

Winter Haven High School, Winter Haven; Dixie County High School, Cross City.

GEORGIA

Decatur Boys' High School, Decatur; Baker High School, Columbus; Georgia Military Academy, College Park; Washington High School, Washington; William A. Bass High School, Sacred Heart School, Atlanta.

HAWAII

McKinley High School, Honolulu; Lanai High School, Lanai City, Lanai; Waimea High and Elementary School, Waimea, Kauai; Benjamin Parker High School, Kaneohe, Oahu; Hilo High School, Hilo Intermediate School, Hilo.

IDAHO

Homedale High School, Homedale; New Plymouth High School, New Plymouth.

ILLINOIS

St. Jacob Township School, St. Jacob; Manual Training High School, Peoria; O'Fallon Township High School, O'Fallon; Dupo Grade School, Dupo; Academy of Notre Dame, Belleville.

INDIANA

Central High School, Fort Wayne; Hartford City High School, Hartford City; Corydon High School, Corydon; Mishawaka High School, Mishawaka; Arsenal Technical Schools, Indianapolis; New Carlisle High School, New Carlisle; F. J. Reitz High School, Evansville.

IOWA

St. Patrick's School, Perry; Abraham Lincoln High School, Council Bluffs; Lincoln High School, Webster City; Rockwell City High School, Rockwell City; Ames High School, Ames; Spencer High School, Spencer.

KANSAS

Ottawa High School, Ottawa; Norton Community High School, Norton; Garnett High School, Garnett.

KENTUCKY

Flaget Memorial High School, Shawnee High School, Louisville.

MAINE

John Bapst High School, Bangor High School, Bangor.

MARYLAND

Franklin High School, Reisterstown; Montgomery Blair High School, Silver Springs; Bethesda-Chevy Chase High School, Bethesda; Paul Lawrence Dunbar High School, Booker T. Washington Junior High School, Frederick Douglass High School, Baltimore.

MASSACHUSETTS

Newton High School, Newtonville; Lynn Classical High School, Lynn; Chicopee High School, Chicopee; West Springfield Junior High School, West Springfield; Cathedral High School, High School of Commerce, Springfield.

MICHIGAN

Powers-Spalding High School, Powers; Marquette High School, Marquette; Brown City High School, Brown City; Coloma High School, Coloma; Washington Junior High School, Port Huron; Wayland High School, Wayland.

MINNESOTA

Albert Lea High School, Albert Lea; Carlton High School, Carlton; Technical High School, St. Cloud; Gilbert High School, Gilbert; Clover Valley High School, Two Harbors High School, Two Harbors.

MISSOURI

Hanley Junior High School, University City; Triplett High School, Triplett; Easton High School, Easton; Soldan-Blewett High School, Southwest High School, St. Louis.

MONTANA

Sheridan High School, Sheridan; Virginia City High School, Virginia City; Twin Bridges High School, Twin Bridges.

NEBRASKA

Holy Trinity High School, Hartington; Scottsbluff High School, Scottsbluff; Madison High School, Madison; Rosalie High School, Rosalie; Lincoln High School, Lincoln.

NEW HAMPSHIRE

Laconia High School, Laconia.

NEW JERSEY

Holy Spirit High School, Atlanta City; Hackensack High School, Hackensack; Cooper B. Hatch Junior High School, Camden; Barringer High School, Newark; Lincoln High School, Jersey City; Highland Park High School, Highland Park; Neptune High School, Neptune; Wilson Junior High School, Passaic.

NEW YORK

Berriman Junior High School, John Ericsson Junior High School, Brooklyn; Homer Central School, Homer; Hudson High School, Hudson; Riverhead High School, Riverhead; Skaneateles High School, Skaneateles; Washington Irving Junior High School, Schenectady; Academy of Saint Joseph, Brentwood; East Rochester High School, East Rochester; Burgard Vocational High School, McKinley Vocational High School, Buffalo.

NORTH CAROLINA

Tarboro High School, Tarboro; Rocky Mount High School, Rocky Mount; James A. Gray High School, John W. Hanes High School, Winston-Salem.

NORTH DAKOTA

Des Lacs Senior High School, Des Lacs; Balfour High School, Balfour; Pembina High School, Pembina; St. John's Academy, Senior High School, Jamestown.

OHIO

Struthers High School, Struthers; Stivers High School, Dayton; Roosevelt Junior High School, Zanesville; Woodrow Wilson Junior High School, Hamilton; Madisonville School, Cincinnati; Poland Union School, Poland.

OKLAHOMA

Jenks High School, Jenks; Tulsa Senior High Schools, Tulsa.

OREGON

Pendleton High School, Pendleton; St. Mary's Academy, Portland.

PENNSYLVANIA

New Cumberland High School, New Cumberland; Somerset High School, Somerset; Gridley Junior High School, Erie; Bok Vocational Technical School, Philadelphia; Phoenixville High School, Phoenixville; East Donegal High School, Maytown; Manchester High School, Manchester; William Penn Senior High School, York.

SOUTH CAROLINA

Aiken High School, Aiken; Graniteville High School, Graniteville; Ware Shoals High School, Ware Shoals; Fairforest High School, Fairforest; Ridge Spring High School, Ridge Spring; Manning High School, Manning; Burke Industrial School, Charleston.

SOUTH DAKOTA

Brandon High School, Brandon; Oglala Community High School, Pine Ridge; Bradley High School, Bradley; Salem High School, Salem; Madison High School, Madison.

TENNESSEE

Corinne Lieberman Cohn School, Bailey Elementary School, Nashville.

TEXAS

I. M. Terrell High School, Fort Worth; Robert E. Lee Junior High School, San Angelo; Birdville High School, Birdville; University Junior High School, Austin High School, Austin.

VIRGINIA

St. Benedict's School, Thomas Jefferson High School, Armstrong High School, Maggie L. Walker High School, Richmond.

WASHINGTON

Kelso High School, Kelso; Centralia High School, Centralia; Sedro-Woolley High School, Sedro-Woolley; Lake Stevens High School, Lake Stevens; Columbian Junior High School, Anacortes Senior High School, Anacortes.

WEST VIRGINIA

Beaver High School, Bluefield; White Sulphur High School, White Sulphur Springs; Greenbrier High School, Ronceverte; Rainelle High School, Rainelle; Charleston High School, Charleston.

WISCONSIN

Beloit Senior High School, Beloit; Whitehall High School, Whitehall; Janesville High School, Janesville; Neenah High School, Neenah; Denmark High School, Denmark; Appleton High School, Appleton; Florence High School, Florence.

WYOMING

Reliance High School, Reliance; Shoshoni High School, Shoshoni; McCormick Junior High School, Cheyenne.

HEALTH EDUCATIONAL SESSIONS ARE SET FOR ANNUAL MEETING

A conference and two seminars on health education will be held at the NTA annual meeting in Washington this month.

Miss Vivian V. Drenckhahn, director of health education, NTA, will preside at the conference, which takes place Monday, April 24, at 9:30 A.M., when "How Can We Use Community Resources in Our Health Education Programs?" will be discussed. Participants will be John Carpenter, Burlington, Vt.; Charles A. Freck, Jamaica, N.Y.; Miss Edith M. Gates, Washington; Bernard E. Hughes, New York City, and Miss Roslyn Rosen, Hartford, Conn. Mrs. Elizabeth F. Jordan, consultant in health education, NTA, will be moderator.

The seminars are scheduled for 8:15 A.M. on Wednesday and Thursday, April 26 and 27. At the first, "How Can Our Health Education Programs Involve Those People Who Do Not Belong to Organizations or Groups?" will be discussed. Edward Sierks, consultant in health education, NTA, will be moderator, and Douglas Ensminger, Washington, discussion leader.

At the second seminar, on "How Can Tuberculosis Associations Help School Administrators To Strengthen Their Health Programs?" Miss Charlotte V. Leach, consultant in health education, NTA, will be moderator. Frank S. Stafford, Washington, and Miss Edna Young Bond, Newark, N.J., will lead discussion.

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TWO-COUNTY MERGER IN PENNSYLVANIA

Merger of two Pennsylvania county tuberculosis associations to form one organization is announced by the Pennsylvania Tuberculosis and Health Society. The associations which pooled their resources are the Bradford County Tuberculosis Association and the Sullivan County Tuberculosis Committee.

Known as the Bradford-Sullivan County Tuberculosis and Health Association, the group will have one board of directors with representation from both counties. Francis Donahue, formerly executive secretary of the Bradford County Association, will serve as executive secretary.

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SCHOOL HEALTH

A graduate seminar in school health education, designed to meet the needs of elementary school teachers and administrators, will be held during the 1950 summer session by the Department of Education, Yale University Graduate School, in cooperation with official and voluntary state organizations concerned with education and health.

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NEW HEADQUARTERS

The Tuberculosis and Health Association of Rochester and Monroe County (N.Y.) will move early in April from its present headquarters, 277 Alexander Street, to its new permanent headquarters at 973 East Avenue, a 24-room, three and a half story brick mansion recently received by the association as a gift from the DePuy-Lindsay estate.

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NCTA TO MOVE

The North Carolina Tuberculosis Association has announced a change in address effective March 1. The new location is the State Capital Life Insurance Building, 2620 Hillsboro Street, Raleigh.

PEOPLE

Alabama—Miss Bertha Clement, supervising nurse at the George Eaves Clinic sponsored by the Anti-Tuberculosis Association of Jefferson County, retired Feb. 6. Miss Clement had been with the association for 36 years.

Mrs. Amy Mathis is the first full-time executive secretary of the Montgomery Tuberculosis Association.

Arizona—Miss Mary Van Zile, for many years associated with the tuberculosis movement in the United States, died in January at Casa Grande where she had lived for the past year. One of the country's pioneer tuberculosis nurses, Miss Van Zile had worked in New York, Oklahoma, and New England before going to Arizona.

Georgia—James E. Crank and O. B. Moore, Jr., have joined the staff of the Georgia Tuberculosis Association as field representatives. Mr. Crank attended the National Tuberculosis Association training course at Kingston, N.Y., last fall.

Indiana—Chester D. Kelly, director of field service for the Indiana Tuberculosis Association, has been named acting executive secretary of the association.

Mrs. Helen Gross is the new executive secretary of the Shelby County Tuberculosis Association. She is a former school teacher.

Dr. Edward M. Glaser, for many years president of the Franklin County Tuberculosis Association, died recently.

Iowa—Mrs. Vera Ewing, former area field representative for the Iowa Tuberculosis and Health Association, has been named Christmas Seal Sale consultant for the association. She has been succeeded as field representative by Miss Mae Aukerman.

Kansas—Dr. Seth L. Cox, executive secretary of the Kansas Tuberculosis and Health Association for the past three years, resigned March 1 because of ill health. A member of the American Trudeau Society, Dr. Cox had served as clinic director of the association from 1919 until 1930 and in the same capacity for the Washington Tuberculosis Association until his return to Kansas in 1943. He is succeeded by Waldo W. Wilmore, associate executive secretary of the association since 1948. A graduate of Kansas University and a National Tuberculosis Association trainee, Mr. Wilmore was formerly personnel director for the Kansas State Board of Health.

Massachusetts—Miss Mary Dinsmore has been re-elected president of the Massachusetts Conference of Tuberculosis Secretaries. Also re-elected was Mrs. Margaret Hummel, vice president. New officers are Nicholas Lavnikevich, secretary, and Miss Jean MacCorison, treasurer.

Miss Joan D. Hummel has been named rehabilitation consultant for the Hampden County Tuberculosis and Public Health Association, succeeding Miss Margaret Johnston.

Mrs. Alice Civilikas has been named to the newly-created position of health educator for the Fall River Anti-Tuberculosis Society. She was formerly health educator for the Bristol County Health Association.

Miss Kara Julian Weeks is the new executive secretary of the Malden Tuberculosis and Health Association, succeeding Miss Dorothy Stocker who resigned to attend the University of Michigan.

Michigan—Roy Manty, director of patient services for the Michigan Tuberculosis Association, left the association on Feb. 1 to become training administrator for the Michigan Department of Health.

Minnesota—Dr. George Douglas Head, one of the state's pioneers in tuberculosis control and a past president of the Minnesota Public Health Association, died recently.

New Jersey—George A. Kavner, executive secretary of the Passaic County Tuberculosis and Health Association and the Passaic County Heart Association, has been named by Governor Alfred E. Driscoll as a member of a committee appointed to study local health services throughout the state.

New York—Dr. James R. Reuling, former president of the National Tuberculosis Association, has been named president of the medical board of Queens General Hospital.

Miss Margaret A. Cain has been named assistant field adviser for the State Committee on Tuberculosis and Public Health, State Charities Aid Association.

North Carolina—Mrs. Nola Marshburn is the new executive secretary of the Carven County Tuberculosis Association, succeeding Mrs. Horace Hill who resigned because of family illness.

Pennsylvania—Mrs. Ralph Forrester, vice president of the Indiana County Tuberculosis Society, died recently. Mrs. Forrester had served on the society's board of directors for 20 years and as executive secretary several times.

Texas—Dr. Howard Smith, director of the Tuberculosis Division, Texas State Health Department, since 1937, has been named director of the state sanatoriums at Tyler, Carlsbad, and Mission. Dr. Smith, a native Texan, is a member of the board of directors of the Texas Tuberculosis Association and of the Travis County Tuberculosis Association, and a member of the American Trudeau Society.

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